

CLAIM SUMMARY DOCUMENT

*The following listing of claims will replace all prior versions and listings of claims
in this application.*

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- 1) (Currently Amended) A composite seal (1) insertable between two relatively rotating members (2, 3) to seal in fluidtight manner a cavity (4) defined between said members; the seal comprising a substantially rigid support (6) for connection to a first (3) of said members, and a flexible sealing element (8) carried integrally by said support (6) and comprising at least one annular sealing lip (10) cooperating in sliding contact with a sealing surface (11) of a second (2) of said members; said flexible sealing element (8) being made of a non-elastomeric, synthetic plastic resin; ~~eharaeterized in that~~ said annular sealing lip (10) of the flexible sealing element (8) is substantially in the form of a cylindrical sleeve defined by a first lateral surface (18) cooperating, in use, with said sealing surface (11) of said second member (2), and by a second lateral surface (20) opposite the first and facing, in use, said first member (3); and by also comprising, in combination, an annular pressure element (21) made of an elastomer and carried ~~integrally~~ by said annular sealing lip (10) on said second lateral surface (20) of the annular sealing lip, the elastomer forming said pressure element not contacting the sealing surface of said second member in use; and a radial toroidal pressure spring (22) carried by said elastomeric annular pressure element (21) and inserted in an annular seat (23) formed in the elastomeric annular pressure element (21), on the opposite side to said annular sealing lip (10).

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2) (Currently Amended) A composite seal (1) as claimed in Claim 1,
~~characterized in that wherein~~ said flexible sealing element (8) and said annular sealing lip
(10) are formed integrally in one piece, and are made of polytetrafluoroethylene (PTFE) or
any other synthetic plastic resin of physical-chemical characteristics similar to those of
PTFE.

3) (Currently Amended) A composite seal (1) as claimed in Claim 1,
~~characterized in that wherein~~ said elastomeric annular pressure element (21) is connected
mechanically, by chemical bonding, to said annular sealing lip (10) of said flexible sealing
element (8) made of non-elastomeric synthetic plastic resin.

4) (Currently Amended) A composite seal (1) as claimed in Claim 3,
~~characterized in that wherein~~ said elastomeric annular pressure element (21) is glued, at the
curing stage, to said second lateral surface (20) of said annular sealing lip (10) of said
flexible sealing element (8) made of non-elastomeric synthetic plastic resin.

5) (Currently Amended) A composite seal (1) as claimed in Claim 3,
~~characterized in that wherein~~ said support (6) is at least partly embedded in a static
elastomeric sealing element (26) glued, at the curing stage, to said support (6).

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6) (Currently Amended) A composite seal (1) as claimed in Claim 5,
~~characterized in that wherein~~ said elastomeric annular pressure element (21) is formed in
one piece with said static elastomeric sealing element (26); and in that said static
elastomeric sealing element is so formed that at least part of said flexible sealing element
(8) made of non-elastomeric synthetic plastic resin is embedded in said static elastomeric
sealing element and gripped against a stop surface (17) of said support (6).

7) (Currently Amended) A composite seal (1) as claimed in Claim 1,
~~characterized in that wherein~~ said flexible sealing element (8) made of non-elastomeric
synthetic plastic resin is connected mechanically to said support (6) and gripped between
two adjacent rigid portions (12, 14) of the support.

8) (Currently Amended) A composite seal (1) as claimed in Claim 1,
~~characterized in that wherein~~ said first lateral surface (18) of the annular sealing lip (10) is
provided with ribs or spiral ridges (30) facing said sealing surface (11) of the second
member (2) in use.

9) (Currently Amended) A composite seal (1) as claimed in Claim 1,
~~characterized in that insertable between two relatively rotating members to seal in fluidtight~~
~~manner a cavity defined between said members; the seal comprising a substantially rigid~~
~~support for connection to a first of said members, and a flexible sealing element carried~~

A1 integrally by said support and comprising at least one annular sealing lip cooperating in sliding contact with a sealing surface of a second of said members; said flexible sealing element being made of a non-elastomeric, synthetic plastic resin; said annular sealing lip of the flexible sealing element being substantially in the form of a cylindrical sleeve defined by a first lateral surface cooperating, in use, with said sealing surface of said second member, and by a second lateral surface opposite the first and facing, in use, said first member; and by also comprising, in combination, an annular pressure element made of an elastomer and carried integrally by said annular sealing lip on said second lateral surface of the annular sealing lip; and a radial toroidal pressure spring carried by said elastomeric annular pressure element and inserted in an annular seat formed in the elastomeric annular pressure element, on the opposite side to said annular sealing lip, said support (6), in radial section, is substantially L-shaped, and comprises a flange portion (12), and a sleeve-shaped portion (16) substantially coaxial with the sleeve-shaped said annular sealing lip (10); the annular sealing lip extending axially, on the opposite side to said flange portion (12) of the support (6), to a length greater than the axial extension of said sleeve-shaped portion (16) of said support (6).

A2 10) (New) A composite seal as claimed in Claim 9, wherein said flexible sealing element and said annular sealing lip are formed integrally in one piece, and are made of a synthetic plastic resin.

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- 11) (New) A composite seal as claimed in Claim 9, wherein said flexible sealing element and said annular sealing lip are formed integrally in one piece, and are made of polytetrafluoroethylene (PTFE) or any other synthetic plastic resin of physical-chemical characteristics similar to those of PTFE.
- 12) (New) A composite seal as claimed in Claim 9, wherein said elastomeric annular pressure element is chemically bonding to said annular sealing lip of said flexible sealing element made of non-elastomeric synthetic plastic resin.
- 13) (New) A composite seal as claimed in Claim 9, wherein said elastomeric annular pressure element is glued to said second lateral surface of said annular sealing lip of said flexible sealing element made of non-elastomeric synthetic plastic resin.
- 14) (New) A composite seal as claimed in Claim 9, wherein said support is at least partly embedded in a static elastomeric sealing element glued to said support.
- 15) (New) A composite seal as claimed in Claim 14, wherein said elastomeric annular pressure element is formed in one piece with said static elastomeric sealing element, and at least part of said flexible sealing element made of non-elastomeric synthetic plastic resin is embedded in said static elastomeric sealing element and gripped against a stop surface of said support.

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- 16) (New) A composite seal as claimed in Claim 9, wherein said flexible sealing element made of non-elastomeric synthetic plastic resin is connected mechanically to said support and gripped between two adjacent rigid portions of the support.
- 17) (New) A composite seal as claimed in Claim 9, wherein said first lateral surface of the annular sealing lip is provided with ribs or spiral ridges facing said sealing surface of the second member in use.
- 18) (New) A composite seal insertable between two relatively rotating members to seal in fluidtight manner a cavity defined between the members, the seal comprising: a substantially rigid support for connection to a first of the members; a flexible sealing element carried integrally by the support and comprising at least one annular sealing lip cooperating in sliding contact with a sealing surface of a second of the members in use; the flexible sealing element being made of a non-elastomeric, synthetic plastic resin; the annular sealing lip of the flexible sealing element being substantially in the form of a cylindrical sleeve defined by a first lateral surface cooperating, in use, with the sealing surface of the second member, and by a second lateral surface opposite the first and facing, in use, the first member; an annular pressure element made of an elastomer that is fixed to the second lateral surface of the annular sealing lip; and a spring carried by the elastomeric annular pressure element and positioned in an annular seat formed in the elastomeric annular pressure element on the opposite side to the annular sealing lip.

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- 19) (New) A composite seal as claimed in Claim 18, wherein the annular pressure element is mechanically connected to the second lateral surface of the annular sealing lip by chemical bonding.
- 20) (New) A composite seal as claimed in Claim 18, wherein the annular sealing lip of the sealing element extends axially beyond a free end of the annular pressure element.
- 21) (New) A method of connecting an annular pressure element to an annular sealing lip to form part of a composite seal which is insertable between two relatively rotating members and comprises a substantially rigid support for connection to a first of the members, a flexible sealing element made of a non-elastomeric, synthetic plastic resin and carried integrally by the support, the sealing element including at least one annular sealing lip cooperating in sliding contact with a sealing surface of a second of the members in use, the annular sealing lip of the flexible sealing element being substantially in the form of a cylindrical sleeve defined by a first lateral surface which is adapted to cooperate in use with the sealing surface of the second member and a second lateral surface opposite the first lateral surface which is adapted to face in use the first member, an elastomer annular pressure element carried on the second lateral surface of the annular sealing lip, and a spring carried by the elastomeric annular pressure element and positioned in an annular

A2 seat formed in the elastomeric annular pressure element on the opposite side to the annular sealing lip, the method comprising:

depositing an adhesion promoter on the second lateral surface of the annular sealing lip;
providing the annular pressure element on the second lateral surface of the annular sealing lip; and
curing the annular pressure element together with the annular sealing lip.

22) (New) A method according to Claim 21, wherein the annular pressure element is provided on the second lateral surface of the annular sealing lip as a green mix.

23) (New) A method according to Claim 21, wherein the adhesion promoter is a primer used to cure rubber on metal.
